PAUL WOOD

Paul Hamilton Wood, the second son of R. B. Wood of the Indian Civil Service, was born at Coonoor in India on August 16, 1907 and died on July 13, 1962, aged 54 years. He went to school in Kent till he was 12 or 13, when his father who was only 45 decided to retire from India and take up fruit farming in Tasmania. Here Paul developed his love of the country and of hard physical work on the farm, and of intellectual pursuits at the Launceston Grammar School, where he did well.

He read medicine at Melbourne University and graduated M.B., B.S., in 1931. He was a versatile athlete, representing his school at most sports and winning his colours for rugby at the university where he was chosen for the combined Australian Universities side, and later in New Zealand he won cups for skiing. His academic career at Melbourne was not as consistently brilliant as it was to be later, for though he passed with distinction in surgery and obstetrics, he failed in medicine the first time and was allowed to leave without doing house appointments.

He held these positions at the Christchurch General Hospital, New Zealand, where his ability and wide knowledge soon became recognised. Here he met Elizabeth, daughter of John Guthrie, M.S., the senior surgeon. In the latter part of 1934 when he had obtained the M.R.C.P. (London) and was finishing his appointment at the Heart Hospital, he wrote asking her to come to England to marry him. This she did and they were married just after Christmas that year.

Paul Wood had come to England in 1933 and soon became H.P. at the Brompton Hospital. Had there been a vacancy at the National Hospital, Queen Square just after this, he would probably have applied for this, since neurology then appealed to him as an exact medical discipline that would satisfy his liking for the platonic form of diagnostic reasoning. He was, however, appointed R.M.O. at the National Heart Hospital in 1934.

Only a few weeks passed before his knowledge and industry and his keen, logical, incisive mind made such an impression on the medical staff that they were saying to each other that he would have to be their next colleague. It was, in fact, only three years before he was appointed Physician to the National Heart Hospital in 1937. In 1935, when the Postgraduate Medical School was founded, he had been asked by Professor F. R. Fraser to join their staff and was given full clinical and teaching responsibility at the age of 27.

His early work was on the chest leads in clinical electrocardiography. In 1937 he wrote on their standards in normal subjects and in 1939 on their value in many clinical conditions. He served on the joint British and American committee for deciding the best methods of using them, and if he had had his way the British committee would have agreed to recommend the use of multiple chest leads in 1938. This work was continued in 1949 by an important paper on cardiac infarction and bundle-branch block.

Soon after the outbreak of war, Wood was investigating effort syndrome in soldiers and firmly established this as a psychiatric disorder. He made this the subject of his Goulstonian Lecture in 1941 on Da Costa's syndrome. Later he joined the R.A.M.C. and served in North Africa and Italy: he became Consulting Physician, Central Mediterranean Force, with the rank of Brigadier and was awarded the O.B.E. and mentioned in despatches; but seems to have been little changed while serving in the army. In 1945 at a conference of army physicians in Rome, he spoke about the importance of foreign bodies in or near the pericardium in producing recurrent attacks of pericarditis. He had written about the cardiographic changes in pericardial lesions and stab wounds of the heart in 1937.

After the war, he became Physician and Senior Lecturer at Hammersmith, and there in the late spring of 1947 he performed his first cardiac catheterization in a small room across the corridor from where McMichael and Sharpey-Schafer had pioneered the technique in Britain for the investigation of cardiac output and failure.* The intellectual climate of Hammersmith always suited him. The sharp interplay of quick minds, the curt exposure of a weak argument, the abrupt riposte—this atmosphere delighted Wood, though he always said he felt at a disadvantage through lack of a formal training in circulatory physiology. He tried to remedy this weakness by throwing his energies into the new technique of cardiac catheterization. He was excited and intrigued by this, annotating his data in rows of neat figures and correlating the findings with the physical signs. From these exercises there emerged a dynamic interpretation of palpation and auscultation, which set a new pattern of bedside diagnosis.

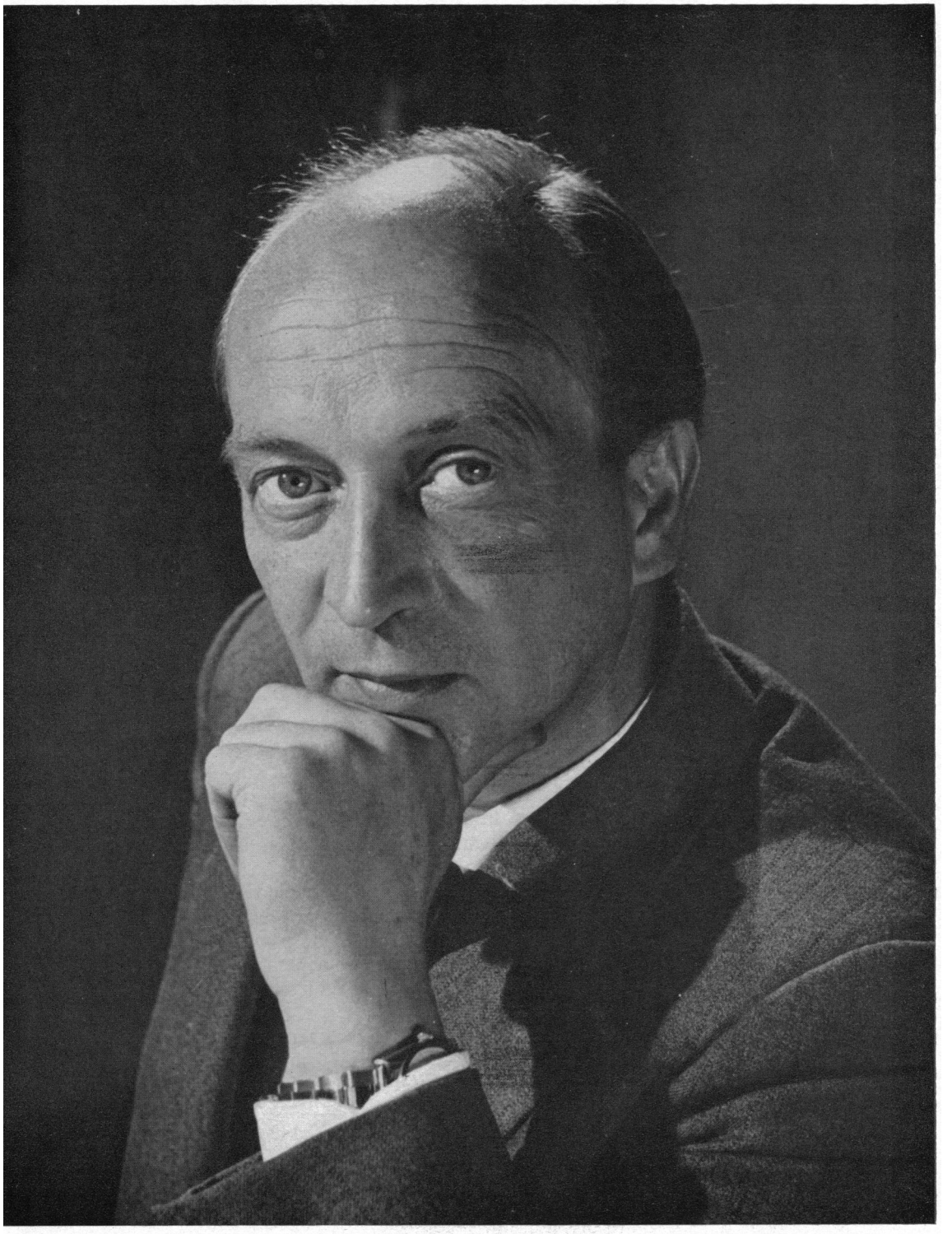
In 1947, he became the first Dean of the new Institute of Cardiology and served till 1949, when he became the first Director (part-time) of the new academic unit of the Institute—a post that he held until his death. This work and his appointment as cardiologist to the Brompton Hospital in 1948 made it necessary for him to give up his post at Hammersmith. His great service to the Institute can hardly be exaggerated. His energy and enthusiasm permeated every new development, many of which he had suggested and in all of which he played a large part. Most important of all he attracted and inspired so many students from all over the world, that many cardiac departments throughout the Commonwealth have been greatly influenced by his ideas and his encouragement, and are now in the charge of his pupils.

None of these important activities were allowed to interfere with his own research work. In 1949, he wrote two valuable papers on the effect of digitalis on the venous pressure, and on the pathological changes in hypertensive and ischæmic heart disease. His St. Cyres Lecture in 1950, based on 200 cases of congenital heart disease that he personally had investigated by modern methods, was a landmark. Re-reading it to-day, there is little that he would wish to omit and it is a remarkable feat to have said so much about simple signs, elaborate investigations, and clearly-deduced general principles. It included a description of the physical signs, with much that was new; a good account of the frequency of the various malformations of the heart *in children*, differing greatly from earlier views; the concept of pulmonary vascular resistance as an important part of clinical medicine; and the modern view on ventricular septal defect, which he more than anyone else has succeeded in establishing. In 1954 he painted a broader picture of this, from the less common form known as the maladie de Roger to those where the pulmonary hypertension is hyperkinetic and those where it is due to a raised vascular resistance (Eisenmenger's complex), correlating these differences with the size of the shunt and the size of the septal defect.

His output of work in 1950 was exceptional even for him, for in addition he wrote important papers on atrial septal defect and the effort test in angina pectoris, and published his monumental book on *Diseases of the Heart and Circulation*. This welded classical cardiology with the newer discoveries and modern techniques, and was firmly based on sound physiological principles. Every chapter shows the influence of his own thought and experience and most of them include some of his own original work. It showed his remarkable grasp of cardiology as a whole and established his world reputation. Since then his work has been devoted mainly to congenital heart disease and to the surgical treatment of congenital and rheumatic heart disease.

Pulmonary hypertension, in general and particularly with ventricular septal defect, was one of his great interests, and he reviewed the subject in 1952 and again in 1959. His Croonian Lecture on the Eisenmenger syndrome (1958) and Fahr Lecture at the University of Minnesota on pulmonary hypertension with special reference to the vaso-constrictive factor (1958) developed his views further. The former gave a clearly argued case for the same physiological factors in all the conditions with left-to-right shunts, and the much greater frequency of the Eisenmenger syndrome in ventricular septal defect was explained by the developments that are taking place after birth. His many activities

* I am indebted to Walter Somerville for this paragraph and for so many others that I wished to add his name as co-author, but he persuaded me that this was not the best course.



PAUL WOOD

did not allow him the time he would have liked for experimental work, but in studying the effects of acetyl-choline on pulmonary vascular resistance (1957) he showed his capacity in this direction with his usual precision and logical deductions.

From the start, Wood was keenly interested in the surgical treatment of rheumatic and congenital heart disease. The fourth patient operated on for mitral stenosis at Guy's Hospital in February 1949 was sent by him, and in 1952 he joined Baker, Brock, and Campbell in a further report on 100 cases of valvotomy for mitral stenosis. Baker had no easy task in arranging a text that satisfied his three colleagues and at the last session, as the hours passed and the criticisms continued, he began to answer fiercely: I remember Paul driving me home not long before daybreak and expressing his increased admiration for Baker, for Paul did not admire too ready acceptance of his views. His Strickland Goodall Lecture in 1954, *An appreciation of mitral stenosis*, is perhaps the most comprehensive expression of his views on this subject, though he wrote further on ways of distinguishing the relative degrees of mitral regurgitation and stenosis (1955), on the diagnosis of tricuspid stenosis (1955), and on the importance of the myocardial factor (1959). His views on the more difficult related question of aortic stenosis were clearly expressed in his Nathanson Lecture in the University of Southern California in 1958.

Good physicians who are also good teachers and able research workers are difficult to find. Wood was eminent in all these fields. He was one of those rare people who have an original mind and yet value established views until there is evidence that calls for their revision. His research work is known all over the world.

He was a superb clinician who liked and understood his patients, and a sound, and sometimes brilliant, diagnosis was only the start for he meant to do everything possible for them. He was a strong partisan for the inclusion of private consulting practice among the other work since this demands a personal interest in every aspect. His manner with patients was intense and direct with an appeal to their intelligence, so that the intelligent were captivated and the more simple gladly accepted his clear explanations. His world-wide fame as a consultant grew each year because apart from his ability and his reputation he had a sensitive concern for every patient in his care.

As a teacher, he was outstanding and his methods always excited lively comment among his registrars and postgraduate students. A history was more exciting and rational with him as interpreter. His acute observation, his sensitive palpation, and his careful auscultation gave him more signs than most others could detect. Then he turned to the special investigations and no stage was left till every scrap of information had been drawn from it. Everyone knew Wood was thinking faster than himself, linking fact with fact, discarding this, and accepting that. Point followed point in crystal clear logic to the final diagnosis.

Yet if some one asked him how he reached his conclusion, he would patiently retrace his steps. An irrevelancy would be curtly dismissed: if the argument were pressed, he would take it asunder point by point and throw it back mercilessly at its author. In this way many learned to think before speaking. In lectures, he was always clear and interesting and could cover a great deal in a short time. In conferences and discussions he enjoyed his speed of thought, and one had to have good reasons if one wished to put forward a contrary view.

And in addition to all this, Wood was a most successful director of a busy department that he had to build up from nothing. He worked hard for the cardiological technicians, trying to improve their status and pay. He was keenly interested in the establishment of the British Heart Foundation and at the time of his death was acting chairman of their Science Committee. His activity was prodigious and he could work and write quickly. Though sometimes he looked tired, he never spared himself.

He travelled widely and there cannot be many men who have lectured in so many great cities of the world. His appointment as Arthur Sims Travelling Professor in 1961 gave him much pleasure. Though it interrupted the rewriting of the third edition of his book and made him devote most of his nominal holiday in Norfolk to preparation, he and Betty saw more of each other on their long travels and specially enjoyed the chance of revisiting Christchurch where they had first met.

Paul Wood's career had a special interest for his seniors since he was one of the first cardiologists who had been trained from the start in more modern methods. They admired the skill with which he kept these in their rightful place and emphasized the history and physical signs. In fact, he did more than anyone has for a long time to increase the knowledge of physical signs, and this was based mainly on his logical deductions from the number of signs that he was able to hear and observe. He was an artist in physical signs. This may have been due entirely to the way he had trained himself, or perhaps to his endowment with an unusual capacity for timing what he saw and heard. His film on the jugular pulse was a masterpiece in showing what could be learnt in this way.

It is too early to assess his greatest contribution to cardiology, but perhaps his decisive demonstrations of the relationship between simple signs and the physiological facts revealed by complex investigations may prove his greatest and most lasting influence. He feared that cardiology might be overwhelmed by the new machines and he has done much to prevent this.

With his great love of truth, Paul would say that this praise was one side of the picture only and that we lacked courage if we did not give the other side. He was at times a difficult member of a team. Most committee meetings he attended were lengthened by animated discussion of his many suggestions: sometimes these were provocative or even mischievous, but all had to be considered carefully for with his imagination and enthusiasm plans that seemed impossible might turn out well. His hearty laugh often dissolved a situation that had grown too tense.

Since his early days at the Heart Hospital, the writer has taken an almost fatherly interest in his progress, with enjoyment of his triumphs and with regret when his impulsive criticism or over-enthusiasm led to difficulties; so I was pleased when he, as chairman introducing me as a guest speaker, said that he knew no one who could be so critical of his friends without losing their friendship. But these difficult facets were superficial and transient, and as Bedford has said those who liked and admired him most were those who knew him best. Essentially, Paul was gentle and kindly and I would like to give two instances—his acknowledgments in his book to his wife and to his teachers at Hammersmith and the Heart Hospital, and his beautiful review of the second edition of Brown's *Congenital Heart Disease*, when some might have expected criticism for the scanty reference to catheterization and angiocardiography.

Only his close friends knew that the rather ascetic-looking man had a warm endearing personality, though many knew how much time he would give to discussing their problems. When time allowed, he quickly dropped his cares and was a gay and effervescent companion with a puckish sense of humour. His greatest relaxation was his home and garden at Totteridge, where he loved working, especially with his roses. He pored over garden catalogues, and the Chelsea Flower Show was the only annual engagement that was allowed to interfere with his work. He spent many happy holidays at his house at Runton in Norfolk and the highlight there was his fishing on the River Bure.

He was a perfectionist at home as well as at work. While this only added to the beauty of his garden, it made the provision of his bedtime reading difficult, for he wanted only detective stories or books on general science and they had to be of the best. He had little time for other reading, though he frequently re-read some of the favourites of his boyhood.

We would like to express our sympathy with his wife, his daughter, and his two sons in their irreparable loss. Paul "fought the good fight with all his might"—the hymn that was chosen for his Memorial Service. It is difficult not to think that his life was shortened by his ceaseless activity. Were this so and were Paul able to lead his life again, his choice would be the same, because there was always so much he wanted to do. The sadness of his early death is for his wife and family, his friends, his colleagues, and his pupils. They expected him to remain a leader of British Cardiology much longer, but they will always feel proud that they knew him and were in touch with some of the great work that he accomplished.

MAURICE CAMPBELL

PUBLISHED PAPERS

1936 The erythrocyte sedimentation rate in diseases of the heart. *Quart. J. Med.*, **29**, 11.
Right and left ventricular failure; a study of circulation time and venous blood pressure. *Lancet*, **2**, 15.

1937 Electrocardiographic changes of a T2 pattern in pericardial lesions and in stab wounds of the heart. *Lancet*, **2**, 796.
The use of chest leads in clinical electrocardiography: I Normal variations (with E. Sorsky). *Amer. Heart J.*, **13**, 183.

1938 Præcordial leads in electrocardiography. A joint memorandum by committees of the British Cardiac Society and the American Heart Association. *Brit. med. J.*, **1**, 187.

1939 Chest leads in clinical electrocardiography (with A. Selzer). *Brit. Heart J.*, **1**, 49.
A new sign of left ventricular failure (with A. Selzer). *Brit. Heart J.*, **1**, 81.
The effect of vitamin B1 deficiency upon the cardiovascular system. *Proc. Roy. Soc. Med.*, **32**, 817.

1940 The action of digitalis in heart failure with normal rhythm. *Brit. Heart J.*, **2**, 132.

1941 Da Costa's syndrome (Goulstonian Lecture). *Brit. med. J.*, **1**, 767, 805, & 845.
Pulmonary embolism: diagnosis by chest lead electrocardiography. *Brit. Heart J.*, **3**, 21.

1945 War wounds of the heart. Conference of Army Physicians, Rome, and *Brit. Heart J.*, 1946, **8**, 235.

1947 Discussion on pulmonary embolism. *Brit. Heart J.*, **9**, 308.

1948 Electrocardiographic appearances in acute and chronic pulmonary heart disease. *Brit. Heart J.*, **10**, 87.

1949 Effect of digitalis on the venous pressure (with J. Pawlett). *Brit. Heart J.*, **11**, 83.
Hypertensive and ischæmic heart disease (with C. V. Harrison). *Brit. Heart J.*, **11**, 205.
Cardiac infarction with bundle-branch block (with W. Somerville). *Brit. Heart J.*, **11**, 305.

1950 Management of rheumatic fever. *Proc. Roy. Soc. Med.*, **43**, 195.
Diseases of Heart and Circulation. 1st ed., 1950; 2nd ed., 1956. Eyre and Spottiswoode, London.
Congenital heart disease. St. Cyres Lecture, 1950. *Brit. Heart J.*, **2**, 639 & 693.
Lesser known features of ventricular septal defect. *Brit. Heart J.*, **12**, 202.
Atrial septal defect (with J. M. Barber and O. Magidson). *Brit. Heart J.*, **12**, 277.
The effort test in angina pectoris (with M. McGregor, O. Magidson, and W. Whittaker). *Brit. Heart J.*, **12**, 363.

1951 Pulmonary stenosis with normal aortic root (with D. G. Abrahams). *Brit. Heart J.*, **13**, 519.
Diagnosis of pericardial effusion by means of cardiac catheterization. *Brit. Heart J.*, **13**, 574.
Treatment of heart disease. *Medical Treatment*, edited by Geoffrey Evans, Butterworths, London.

1952 Valvotomy for mitral stenosis (with C. G. Baker, R. C. Brock, and M. Campbell). *Brit. med. J.*, **1**, 1043.
Pulmonary hypertension. *Brit. med. Bull.*, **8**, 348.

1954 An appreciation of mitral stenosis. Strickland Goodall Lecture. *Brit. med. J.*, **1**, 1051 & 1113.
Ventricular septal defect with a note on acyanotic Fallot's tetralogy (with O. Magidson and P. A. O. Wilson). *Brit. Heart J.*, **16**, 387.

1955 The diagnosis of tricuspid stenosis (with R. V. Gibson). *Brit. Heart J.*, **17**, 552.
A new method of determining the degree or absence of mitral obstruction: an analysis of indirect left atrial pressure tracings (with S. G. Owen). *Brit. Heart J.*, **17**, 41.

1957 The effect of acetyl-choline on pulmonary vascular resistance and left atrial pressure in mitral stenosis (with E. M. Besterman, M. K. Towers, and M. B. McIlroy). *Brit. Heart J.*, **19**, 279.

1958 Aortic stenosis. The 1958 Morris H. Nathanson Lecture, University of Southern California, Los Angeles. *Amer. J. Cardiol.*, **1**, 553.
Attacks of deeper cyanosis and loss of consciousness (syncope) in Fallot's tetralogy. *Brit. Heart J.*, **20**, 282.
The Eisenmenger syndrome. The Croonian Lectures. *Brit. med. J.*, **2**, 701.
Pulmonary hypertension with special reference to the vaso-constrictive factor. The George Fahr Lecture, University of Minnesota. *Brit. Heart J.*, **20**, 557.

1959 The myocardial factor in mitral valve disease (with H. A. Fleming). *Brit. Heart J.*, **21**, 117.
Pulmonary hypertension. *Med. Conc. cardiovasc. Dis.*, **28**, 513.

1961 Polyuria in paroxysmal tachycardia. *Brit. Heart J.*, **23**, 457.

1962 Lung stiffness in states of abnormal pulmonary blood flow and pressure (with Hywel Davies and J. Williams) *Brit. Heart J.*, **24**, 129.